Town Government: Is Bigger Better, or Is Small Beautiful?

Economic theory is ambiguous about the connection between organizational size and efficiency.

BY STEVEN P. LANZA

Hard economic times are prompting folks in all sectors of the economy to cinch their belts an extra notch or two. Households are driving less and shopping the bargain aisles, while businesses are scotching expansion plans and even paring back existing workforces. State and local governments are feeling the pinch, too. They're trimming budgets, mulling tax hikes and looking for novel ways to economize on service provision. Regional consolidation is one such innovative idea, but can it actually deliver the promised cost savings that its proponents claim?

New Jersey's Governor Jon Corzine made headlines recently with an all-stick, no-carrot plan to reduce state spending and prod localities into operating more efficiently. Corzine has proposed eliminating state aid to towns with fewer than 5,000 residents and halving support to municipalities with populations below 10,000. Small municipalities could dodge the revenue-cutting axe by merging with other jurisdictions or sharing services, under the presumption that these bigger service areas could capitalize on economies of scale and reduce the cost of local government.

In sheer number Connecticut's 169 towns, spread out over 4,800 square miles, pale beside the 21 counties overlapping 566 cities, towns, boroughs, villages, and townships that New Jersey has carved out for itself from just a 50% larger land area. But critics say that Connecticut's fractured system of local government, however modest by New Jersey standards, is no less wasteful and inefficient. Why shouldn't the Nutmeg State follow suit and consider alternatives—regionalism, municipal consolidation, shared service provision—that could lower costs and boost efficiency?

THEORY 101

The problem is, economic theory is ambiguous about the connection between organizational size and efficiency. On the one hand, large towns might indeed operate at a lower average cost by "spreading the overhead." A town of several hundred residents might require a four-officer police team to provide round-the-clock protection, but if that same force can just as easily serve the needs of several thousand people, the larger town can provide police protection at a lower cost per person.

On the other hand, large governments may behave as monopolists, with bloated bureaucracies that are unresponsive to resident needs. These so-called "leviathans" are motivated to maximize revenue, but lack incentives to keep expenses low if they can simply pass higher costs on to taxpayers. An alternative system of many competing, smaller-sized governments might encourage towns to minimize costs, and also make it easier for people to shop among jurisdictions for their preferred bundle of local public services and other amenities.

Adding to the confusion, shoehorning a mass of autonomous municipalities into a limited space may bring out the worst in decision makers, encouraging them to behave strategically—free riding on the benefits of adjacent towns' public services or shifting the costs of their own activities to their neighbors. A town might site a shopping center on its border, for

instance, in part to divert traffic into neighboring jurisdictions. Carving out larger towns from the landscape might force municipalities to internalize more of the costs of their own activities.

With strands of theory pointing in so many different directions, whether regional consolidation or some other system of shared service provision might enhance efficiency and lower costs reduces to an empirical question.

ALL THINGS CONSIDERED

According to data from the Connecticut Office of Policy and Management (OPM), 2006 per-capita spending on local public services ranged from a low of $1,534 in Mansfield (a figure no doubt skewed by the large UConn student population), to a high of more than thrice that amount—$5,526 in Westport. University students notwithstanding, spending tends to be lower in the northeast corner of Connecticut and higher in the southwest part of the state.

OPM breaks town expenditures into two broad categories: educational spending (accounting for 60% of municipal budgets) and non-educational spending (for public works, safety, and other services), which makes up the balance. Per-pupil educational spending varied from $8,163 in Watertown to $16,135 in Canaan (see Centerfold map on p. 12)—a difference of nearly $8,000—while non-educational spending varied less in an absolute sense but more in relative terms, from $427 per capita in Sterling to $2,657 in Woodbridge.

Why the wide divergence? One obvious source of variation is the cost of factor inputs. Higher rents, wages and capital costs will make public services more expensive. The quality of public services matters, too. Better schools and a wider variety of recreational amenities do not come cheap. Other characteristics of the population likely play a role. Youngsters coming from disadvantaged households may need costly, remedial educational services. And a more highly educated adult population may insist on superior educational facilities for their own kids.

The Corzine plan sketched above presupposes that, once we've accounted for differences in input costs, service quality, and other community characteristics, larger towns are expected to spend less on public services than smaller towns because they can produce those services at a lower unit cost. In economic terms, towns face U-shaped average cost curves where per-unit costs decline over a range of output.

THEORY MEETS REALITY

To estimate the cost of producing local public services in Connecticut's 169 towns, I constructed two separate least-squares regression models: one for educational services, the other for non-educational services.

I modeled per pupil education expenditures as a function of student enrollment as well as the square of that value, in view of the hypothesized non-linearity in average cost with respect to output, and of class size and computers per student, to control for educational quality. The model also includes median home values divided by the average number of rooms (a measure of the price of building space) and per-capita debt burdens as a proxy for input costs. Percent of households headed by a female and percent of adults with a college education capture community characteristics, while a variable measuring the average class size in neighboring towns allows for possible spillover effects between municipalities.

The education regression yielded significant coefficients, opposite in sign, on the two enrollment terms: negative on the enrollment term itself, but positive on enrollment squared. That combination suggests a U-shaped cost curve that first declines, but then turns upward after bottoming out at an enrollment level of 7,700 students. Since mean student enrollment per town was only 3,347 in 2006, the average school system would need to more than double its present size to fully capture scale economies. And the payoff could be sizeable. The difference between the least-efficient and the optimally-sized school district comes to more than $2,400 per student (see the first graph, next page). Thus, increasing district enrollments through consolidations would likely lower costs.

Per-student education cost is also associated with the education quality of adjoining towns. Towns whose neighbors have large class sizes tend to have lower costs of education, likely the result not of a causal link but of spatial dependency. Towns in close proximity to one another often share characteristics such as resident preferences and economic resources. So a town with large class sizes is apt to be located next to other towns that have chosen to educate their kids in large classes, too, and these large class sizes reduce the per-pupil cost of education. The estimated difference in expendi-

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ture between towns with the smallest (12) and largest (24) own-class size is nearly $3,900.

The estimated differential impacts on costs between the bottom- and top-ranked towns arising from changes in the other independent variables were also significant. Raising the ratio of computers to students from a low of 0.083 to a high of 1.0 would cost more than $1,500 per student (a reasonable estimate of the price of a computer). The $98,000-plus difference in room values across the state translates into a difference of $5,300 in per-pupil spending, while the town with the highest debt burden spends an estimated $2,200 less than the one least-burdened by debt. Perhaps the high debt loads reflect earlier investments in efficiency-enhancing buildings and equipment. Towns with larger shares of female-headed households and adults with college degrees also spend more per student on education.

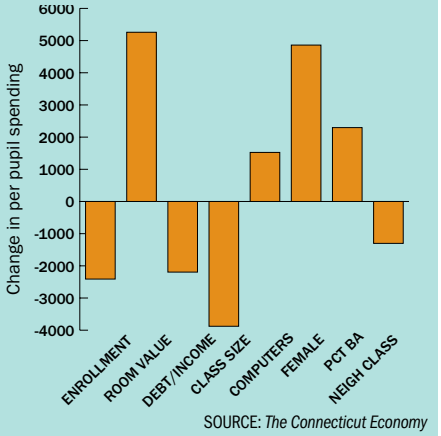
SECOND VERSE, DIFFERENT FROM THE FIRST

A different tale emerges from the second regression model, which relates cost per capita for non-educational local public services to output (measured by population, since all residents share these services), and other explanatory variables (see second graph). Here, the estimated coefficient on the output term, population served, is positive and significant, but that for population squared (to allow for nonlinearities) is not significant. For non-educational services, unit costs appear to rise steadily with output, unlike educational services. Thus, expanding the scale of government non-education services is unlikely to generate any significant cost savings, and may actually make public services more expensive.

And unlike educational services, which show evidence of a positive association between output in one town and output (and cost) in adjacent jurisdictions, non-educational services exhibit signs of a negative spillover effect. Per unit costs are inversely related to average library books per capita (a proxy for non-educational public service quality) in surrounding communities. So if neighboring towns skimp on public services, a town's own cost of meeting its residents' needs may go up by as much as $300 per resident, based on the difference between the highest and lowest service levels of neighboring towns.

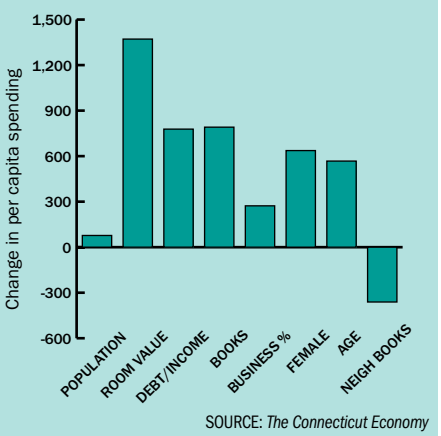
Home values and female heads of households, which were significant in the education service model, exert a similar influence on non-educational service spending. Higher debt levels added to rather than reduced non-educational expenditures, perhaps because excessive borrowing weakened creditworthiness and raised the cost of capital. And in this model median age, rather than educational attainment, turned out to be a significant demographic influence (positive) on spending. Towns with a larger share

PREDICTED DIFFERENTIAL IN PER PUPIL SPENDING



SOURCE: *The Connecticut Economy*

PREDICTED DIFFERENTIAL IN PER CAPITA NON-ED SPENDING



SOURCE: *The Connecticut Economy*

of business property on the grand list also spent more per capita on public services, presumably to provide the necessary infrastructure that commercial activities require.

READING THE TEA LEAVES

The regression results suggest that municipal consolidation or other service-sharing plans offer no silver bullet for the problem of costly local public services. Localities probably could benefit from additional cooperation in the provision of local education. And many towns already do participate in regional school systems—Connecticut has eight regional districts at the high school level and nine districts in the lower grades. The fact that more municipalities do not forge such partnerships may reflect dimly-perceived benefits of cooperation, an inability to negotiate or police the terms of an alliance with neighboring jurisdictions, or a stubborn adherence to home rule and local control of personnel and curricula. To the extent that towns simply prefer to manage their own school programs, the resulting inefficiency can be viewed as the price residents are willing to pay for such autonomy.

Consolidating public services doesn't appear to offer the same economies of scale for public works, safety and other services that it does for education. Part of the explanation may be that towns have already exploited whatever economies might be gained in these areas, and the cost savings are already reflected in the data. In the Hartford area, for example, the Metropolitan District Commission provides water and sewer service to eight participating municipalities. The sizeable benefits that accompany a large-scale undertaking such as that were probably sufficient to overcome the bargaining and enforcement costs that might easily have scuttled a less ambitious enterprise.

But such economies are probably less characteristic of other public services—safety, health, recreation and the like. There's a good chance towns can add or reduce staff in these areas as needed without affecting the unit cost of inputs. And while there may be some indivisibilities at the "plant" level—eventually a town may have to build or shutter a fire station or police barracks—such adjustments will occur in rough proportion with population, and regionalism won't necessarily forestall the need for them.

One way regionalism might enhance efficiency is by mitigating the kinds of spillover effects that were evident in the non-educational setting. Why? Benefits and costs can take on a spatial dimension, and their spheres don't always overlap. A municipal library may restrict borrowing privileges to local residents, for example, but it probably can't completely bar (either *de jure* or *de facto*) out-of-towner access to other conveniences such as public reading rooms, restrooms, or WiFi Internet. Where free riding occurs, however, towns have the incentive to under-provide public services. In Connecticut's case these impacts appear moderate. For every ten percent increase in its neighbors' non-educational output, a town's costs decrease by about 1%.

Connecticut's long and strong resistance to regionalism is at least partly justified by an apparent absence of significant scale economies, at least for non-educational services. But evidence of significant spillover effects suggests that more regional cooperation might make good sense.

FACTORS AFFECTING PER PUPIL AND PER CAPITA NON-EDUCATIONAL SPENDING

	Coefficient	P-Value
Constant	15777.92	0.00
Enrollment	-0.159745	0.01
Enrollment Squared	1.04E-05	0.00
Class Size	-323.181	0.00
Computers per Student	1663.339	0.01
Room Value	0.053329	0.00
Female-Headed Households	191.4213	0.00
BA Degrees	35.76427	0.00
Debt-to-Income	-7143.167	0.00
Neighbor Class Size	-150.2455	0.01

	Coefficient	P-Value
Constant	-839.1034	0.01
Population	0.005212	0.05
Population Squared	-3.35E-08	0.13
Books per Capita	34.49757	0.00
Grand List, Business Share	6.003583	0.11
Room Value	0.013907	0.00
Female-Headed Households	25.07708	0.01
Median Age	21.01666	0.00
Debt-to-Income	2532.297	0.00
Neighbor Library Books	-25.05388	0.03

Coefficient values measure the change in per pupil spending (left table) and per capita non-educational spending (right table) associated with a one-unit change in each independent variable listed. The p-values are estimates of the likelihood that these coefficient values occurred by chance. The smaller the p-value, the more statistically significant the result.